## REMARKS

Claims 1-32 and 34-55 are pending in the above-captioned patent application after this amendment. Claims 8 and 39-42 are objected to. Claims 1-32 and 34-55 are rejected.

The Applicant respectfully disagrees with the rejection of claims 1-32 and 34-55. However, the Applicant has amended claims 1, 9, 12, 20, 21, 43, 26, 36, 37, 39-41, 43, 45, 51-53 and canceled claims 2 and 8 without prejudice with this amendment for the purpose of expediting the patent application process in a manner consistent with the goals of the Patent Office (65 Fed. Reg. 54603), and/or to clarify what the Applicant regards as the present invention. Claims 39-41 were amended in response to the objections to these claims and not in response to any stated rejection of these claims. Additionally, claims 9, 12, 26, 36, 39-41, 45 and 51-53 were amended to correct certain informalities, such as typographical and/or grammatical errors, and not to respond to any stated rejection of these claims.

Support for the amendments to claims can be found throughout the originally filed specification. In particular, support for the amendments to claims can be found in the specification at page 13, lines 6-14, at page 16, line 29 through page 17, line 8, at page 22, line 27 through page 23, line 2, in Figures 3A, 3B, 4A-4C and in originally filed claim 2.

No new matter is believed to have been added by this amendment.

Reconsideration of the pending application is respectfully requested in view of the above-recited amendments and the arguments set forth below.

## Objections to the Claims

### Claim 8

Claim 8 has been objected to under 37 CFR 1.75 as being a substantial duplicate of claim 1. The Applicant agrees with the objection of the Examiner and, in response, the Applicant has canceled claim 8 without prejudice with this amendment. Accordingly, the Applicant respectfully submits that the objection to claim 8 is moot.

**Claims 39-42**

Claims 39-42 have been objected to as being dependent upon claim 33, which was canceled. In response, the Applicant has amended claims 39-41 to properly depend from claim 37 instead of previously canceled claim 33. Additionally, claim 42 depends directly from claim 41, and therefore claim 42 no longer depends upon previously canceled claim 33. Accordingly, the Applicant respectfully submits that the objection to claims 39-42 has been overcome and respectfully requests that the objection to claims 39-42 be removed.

**Rejections Under 35 U.S.C. §112, Second Paragraph**

Claims 2, 5, 27, 38 and 50 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite for containing the term "approximately", which is a relative term that renders the claims indefinite. More particularly, the Examiner asserts that "(t)he term 'approximately' is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention."

Claim 2 has been canceled without prejudice with this amendment. Accordingly, the Applicant respectfully submits that the rejection of claim 2 under 35 U.S.C. §112, second paragraph, is moot. However, the limitations from previous claim 2 have been added into claim 1. Therefore, the Applicant will address this rejection as if it included a rejection of claim 1.

The Applicant respectfully disagrees with and traverses the rejection of claims 1, 5, 27, 38 and 50 under 35 U.S.C. §112, second paragraph, for the reasons which follow.

35 U.S.C. §112, second paragraph, contains two separate and distinct requirements, namely, (A) the claims must set forth the subject matter that applicants regard as their invention; and (B) the claims must particularly point out and distinctly define the metes and bounds of the subject matter that will be protected by the patent grant. MPEP §2171.

To interpret whether certain of these criteria have been satisfied, MPEP §2173.02 provides guidelines to be followed by the Patent Office. MPEP §2173.02 states in relevant part:

"When the examiner is satisfied that patentable subject matter is disclosed, and it

is apparent to the examiner that the claims are directed to such patentable subject matter, he or she should allow claims which define the patentable subject matter with a *reasonable* degree of particularity and distinctness. Some latitude in the manner of expression and the aptness of terms should be permitted even though the claim language is not as precise as the examiner might desire." (Emphasis original and added.) MPEP §2173.02.

Further, the MPEP provides that "(t)he essential inquiry pertaining to this requirement is whether the claims set out and circumscribe a particular subject matter with a reasonable degree of clarity and particularity. Definiteness of claim language must be analyzed, not in a vacuum, but in light of:

(A) The content of the particular application disclosure;

(B) The teachings of the prior art; and

(C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made." MPEP §2173.02

Additionally, MPEP §2173.05(b) further provides that "(t)he fact that claim language, including terms of degree, may not be precise, does not automatically render the claim indefinite under 35 U.S.C. 112, second paragraph." MPEP §2173.05(b), citing Seattle Box Co. v. Industrial Crating & Packing, Inc., 731 F.2d 818, 221 USPQ 568 (Fed. Cir. 1984).

The pending claims define the patentable subject matter with a reasonable degree of particularity and distinctness notwithstanding the usage of the term "approximately" in conjunction with the term "equal". Further, although the MPEP does not discuss case law specifically associated with use of the term "approximately", the Applicant respectfully submits that the term "approximately" can be applied, as it was in the present application, in a manner similar to the terms "about" or "substantially". As illustrated in MPEP §2173.05(b), case law supports the usage of the terms "about" or "substantially". See e.g., Ex parte Eastwood, 163 USPQ 316 (Bd. App. 1968); Andrew Corp. v. Gabriel Electronics, 847 F.2d 819, 6 USPQ2d 2010 (Fed. Cir. 1988). For example, in Andrew Corporation, the U.S. Court of Appeals for the Federal Circuit *reversed* the District Court's ruling that a patent was invalid for indefiniteness. The

Court of Appeals held that the patent was not invalid, even though the applicant used words such as "approach each other", "close to", "substantially equal" and "closely approximate". The court relied on Seattle Box Co, 731 F.2d at 826, 221 USPQ at 573-74, which remarked that "substantially equal" is a term of degree, and that its acceptability depends on "whether one of ordinary skill in the art would understand what is claimed ... in light of the specification, even if experimentation may be needed." A review of the specification of the issued patent shows that no guidance or definition for "substantially" was provided. (See U.S. Patent No. 4,410,892 issued to Knop, et al.) Nevertheless, the court found that the term "substantially" was not indefinite. (See also, In re Mattison, 509 F2d 563, 184 USPQ 484 (1975); U.S. Patent No. 3,939,203 issued to Mattison, et al., wherein no definition of the term "substantially" is provided in the specification.)

Additionally, as summarized by the Second Circuit Court of Appeals, "If the claims, read in light of the specification, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more." Georgia Pacific Corp. v. United States Plywood Corp., 258 F.2d 124, 136, 118 USPQ 122, 132 (2d Cir.), cert. Denied, 358 U.S. 884, 79 S.Ct. 124 (1958). (Emphasis added.)

Accordingly, the Applicant respectfully submits that the rejection of claims 2, 5, 27, 38 and 50 under 35 U.S.C. §112, second paragraph, is improper and should be withdrawn.

## Rejections Under 35 U.S.C. §102(b)

### Claims 1-5, 7-11, 20, 34-38 and 43-50

Claims 1-5, 7-11, 20, 34-38 and 43-50 are rejected under 35 U.S.C. §102(b), as being anticipated by U.S. Patent No. 6,313,556 issued to Dombrovski et al. ("Dombrovski et al."). Claim 2 has been canceled without prejudice with this amendment. Accordingly, the Applicant respectfully submits that the rejection of claim 2 under 35 U.S.C. §102(b), is moot. However, the limitations of claim 2 have been added to claim 1. Accordingly, the Applicant respectfully traverses the rejection of amended claim 1. Further, the Applicant respectfully submits that the rejection of claims 20, 37,

and 43, as amended, is unsupported by the art and should be withdrawn.

More particularly, the Examiner contends that Dombrovski et al. teaches in Figure 1, a mover having a magnet component (14) and a conductor (52), said mover defining a first passageway (76, 78) and a second passageway (44) including an inlet, the first passageway encircling a portion of the second passageway, and a circulation system (16, 20) comprising a fluid source that directs a first fluid to the first passageway and a second fluid to the second passageway, wherein the second fluid is approximately boiling at the inlet. The Examiner further contends that Dombrovski et al. teaches in Figure 1, a method for controlling the temperature of a mover including a magnet component (14) and a conductor (52), said mover defining a first passageway (44) in the mover and a sealed second passageway (76, 78) in the mover, and circulating a first fluid from a fluid source through the first passageway.

The Applicant provides that Dombrovski et al. is directed to a superconducting electromechanical rotating (SER) device 10 including: a rotor 14; a cryogenic refrigeration system 16 which cools the windings of the rotor 14; a stator 18 that coaxially surrounds the rotor 14 and drives the rotor 14 to rotate upon receiving an excitation current; a water cooler 20; and a power source 22. The rotor 14 includes a rotor winding 52, which is cooled by the cryogenic fluid so as to be rendered superconductive; a coil support structure 56; and a vacuum jacket 54, which thermally insulates them from the environment. The cryogenic refrigeration system 16 is linked to the interior of the rotor 14 via respective supply and return conduits 44 and 46. The refrigerant supplied by the cryogenic refrigeration system 16 may be any suitable cryogenic fluid such as gaseous helium, liquid nitrogen, liquid neon, or liquid oxygen, which is pumped through the coil support structure 56 via the supply and return conduits 44 and 46 to cool the rotor winding 52. The stator 18, which includes a stator winding 72 and a support structure 74, is cooled by circulating a liquid coolant such as water through the stator 18 in a closed loop via supply and return conduits 76 and 78 extending between the water cooler 20 and the stator 18. The water cooler 20 may comprise an assembly which is capable of drawing heated water away from the stator 18 via the return conduit 78, cooling the heated water to a temperature, for example, near, at or below ambient temperature, and returning the cooled water to the stator 18 via the supply conduit 76. (Dombrovski et al. Abstract,

column 1, lines 24-33, column 2, lines 37-48, column 4, line 42 through column 5, line 49, and column 8, line 66 through column 9, line 7, and in Figure 1).

However, the Applicant contends that Dombrovski et al. does not disclose a mover combination including a mover having an outer surface, and a circulation system having a fluid source that controls the temperature and flow of a first fluid so that the temperature of the outer surface of the mover is approximately equal to an ambient temperature. The SER device 10 in Dombrovski et al. includes a first passageway (supply and return conduits 76 and 78) that at least partly encircles a portion of a second passageway (supply and return conduits 44 and 46), wherein the first passageway uses a liquid coolant such as water to cool the stator 18, and wherein the second passageway uses a cryogenic fluid to cool the rotor windings 52. However, in Dombrovski et al., the water cooler 20 controls does not teach or disclose controlling the temperature and flow of the first fluid so that the temperature of the outer surface of the SER device 10 is approximately equal to an ambient temperature..

Additionally, the Applicant contends that Dombrovski et al. does not disclose a mover including a sealed second passageway. As discussed above, both the first passageway and the second passageway of Dombrovski et al. have supply conduits 44, 76 and return conduits 46, 78, which require the passageways to be open to the fluid sources. In the present invention, a fluid is present inside the sealed second passageway, but the second passageway is sealed so as to prevent flow of fluid to or from a fluid source. The fluid is simply maintained within the sealed second passageway.

In distinction to Dombrovski et al., amended claim 1 of the present application recites "(a) mover combination comprising: a mover including an outer surface, the mover defining a first passageway and a second passageway including an inlet, the first passageway at least partly encircling a portion of the second passageway; and a circulation system comprising a fluid source that directs a first fluid to the first passageway and a second fluid to the second passageway, wherein the fluid source controls the temperature and flow of the first fluid so that the temperature of the outer surface is approximately equal to an ambient temperature, and wherein the second fluid is approximately boiling at the inlet."

Because Dombrovski et al. does not disclose all of the elements of amended claim

1, the §102(b) rejection of amended claim 1 is unsupported by the art and should be withdrawn. Because claims 3-5 and 7-11 depend either directly or indirectly upon amended claim 1, the rejection of claims 3-5 and 7-11 under 35 U.S.C. §102(b) is also unsupported by the art and should be withdrawn.

Further, in distinction to Dombrovski et al., claim 20 of the present application recites "a mover including a magnet component, and a conductor component, the mover also including a first passageway and a sealed second passageway, the second passageway being filled with a second fluid that is not actively circulated; and a fluid source that circulates a first fluid through the first passageway."

Because Dombrovski et al. does not disclose all of the elements of claim 20, the §102(b) rejection of claim 20 is unsupported by the art and should be withdrawn.

Additionally, in distinction to Dombrovski et al., amended claim 37 of the present application recites "(a) method for making a mover combination ... comprising the steps of: (i) providing a mover having an outer surface, a magnet component and a conductor component, the mover including a first passageway having a first inlet and a second passageway having a second inlet, the first passageway at least partly encircling a portion of the second passageway and (ii) controlling the temperature of the outer surface of the mover so that it is approximately equal to an ambient temperature by directing a first fluid from a fluid source into the first inlet; and directing a second fluid from the fluid source into the second inlet, wherein a temperature of the second fluid at the second inlet is approximately equal to the boiling temperature of the second fluid at an absolute pressure within the second passageway."

Because Dombrovski et al. does not disclose all of the elements of amended claim 37, the §102(b) rejection of amended claim 37 is unsupported by the art and should be withdrawn. Because claims 34-36 and 38 depend either directly or indirectly upon amended claim 37, the rejection of claims 34-36 and 38 under 35 U.S.C. §102(b) is also unsupported by the art and should be withdrawn.

Still further, in distinction to Dombrovski et al., claim 43 of the present application recites "(a) method for controlling the temperature of a mover ... comprising the steps of: providing a first passageway in the mover, the first passageway having a first inlet; providing a sealed second passageway in the mover, the second passageway being

filled with a second fluid that is not actively circulated; and circulating a first fluid from a fluid source through the first passageway."

Because Dombrovski et al. does not disclose all of the elements of claim 43, the §102(b) rejection of claim 43 is unsupported by the art and should be withdrawn. Because claims 44-50 depend either directly or indirectly upon claim 43, the rejection of claims 43-50 under 35 U.S.C. §102(b) is also unsupported by the art and should be withdrawn.

**Claims 7 and 20-26**

Claims 7 and 20-26 are rejected under 35 U.S.C. §102(b), as being anticipated by U.S. Patent No. 4,155,019 issued to Weghaupt ("Weghaupt"). Since claim 7 is a dependent claim, which depends upon independent claim 1 and dependent claim 6, the Applicant assumes that the Examiner also intended to reject independent claim 1 and dependent claim 6 herein, as claim 7 includes all of the limitations of independent claim 1 and dependent claim 6. The Applicant respectfully submits that the rejection of claims 1 and 20, as amended, is unsupported by the art and should be withdrawn.

More particularly, the Examiner contends that Weghaupt teaches in Figures 1 and 2, a mover having a magnet component and a conductor component (3), said mover defining a first passageway (28 in Fig. 1 or 12 in Fig. 2) and a (sealed) second passageway (12 in Fig. 1 or 31, 32 in Fig. 2) including an inlet; and a fluid source that circulated a first fluid through the first passageway. The Examiner further contends that Weghaupt teaches a circulation system comprising a fluid source that directs a first fluid to the first passageway and a second fluid to the second passageway, wherein the second fluid is approximately boiling at the inlet, and wherein the passageways are positioned in the conductor component.

The Applicant provides that Weghaupt is directed to in Figure 1, a generator including: a drum rotor 1 having an inner space 2 that is evacuated for better thermal insulation of the contents of the inner space 2; an exciter winding 3 of superconductive material that is mounted on the inside of a cylinder 4, which is connected to the drum rotor 1; and an exciter current lead-carrying shaft 7 that is connected to a hollow rotor shaft 5 forming part of the drum rotor 1. A low-cooled coolant, for example liquid helium, flows from an inlet chamber 10 of a coolant terminal 11 through a coolant supply channel 12

coinciding with the axis of the exciter current lead-carrying shaft 7 and the rotor shaft 5 and leaves through an annular channel 15 concentric with the coolant supply channel 12. Exciter current leads 26 are disposed in a guide tube 27 which communicates with a helium chamber 28 of a winding head 14 located at the exciter side, and helium is delivered from the helium chamber 28 through a bore 29 of the exciter current leads 26. The quantity of helium flowing through the current leads 26 is determined by throttling devices so that the helium is transformed from liquid to gas when flowing through the current leads. (Weghaupt column 3, line 4 through column 4, line 19, and in Figure 1).

The Applicant provides that Weghaupt is directed to in Figure 2, a generator including the coolant circuit provided in Figure 1, and a second coolant circuit which serves to cool a cool shield that surrounds the exciter winding 3. The inner coolant circuit, with forward line 12 and return line 15 is traversed by helium cooled to about 4.2° Kelvin. An outer coolant circuit having a forward line 31 and a return line 32 is at a temperature of about 50° to 70° and serves to cool the cold shield. The two coolant circuits are insulated from each other by annular gaps 33 and 24 provided in the rotor shaft 5 and in the exciter shaft 7, respectively. (Weghaupt column 4, lines 20-45, and in Figure 2).

However, the Applicant contends that Weghaupt does not disclose a mover combination including a mover having an outer surface, and a circulation system having a fluid source that controls the temperature and flow of a first fluid so that the temperature of the outer surface of the mover is approximately equal to an ambient temperature. The generator in Weghaupt includes a first passageway (29 in Figure 1, or 31 and 32 in Figure 2) that at least partly encircles a portion of a second passageway (forward and return lines 12 and 15), wherein the first passageway and the second passageway uses fluids to cool separate portions of the generator. Weghaupt discloses cooling the helium in forward and return lines 12 and 15 of the inner coolant circuit to about 4.2° Kelvin, which is the approximate boiling point of helium, and having the temperature of the fluid in the forward and return lines 31 and 32 of the outer coolant circuit at between 50° and 70°. However, Weghaupt does not teach or disclose controlling the temperature of an outer surface of the generator.

Additionally, the Applicant contends that Weghaupt does not disclose a mover including a sealed second passageway. As discussed above, both the first passageway

and the second passageway of Weghaupt have forward lines 12, 29, 31 and return lines 15, 32, which require the passageways to be open to the fluid sources. In the present invention, a fluid is present inside the sealed second passageway, but the second passageway is sealed so as to prevent flow of fluid to or from a fluid source. The fluid is simply maintained within the sealed second passageway.

In distinction to Weghaupt, amended claim 1 of the present application recites "(a) mover combination comprising: a mover including an outer surface, the mover defining a first passageway and a second passageway including an inlet, the first passageway at least partly encircling a portion of the second passageway; and a circulation system comprising a fluid source that directs a first fluid to the first passageway and a second fluid to the second passageway, wherein the fluid source controls the temperature and flow of the first fluid so that the temperature of the outer surface is approximately equal to an ambient temperature, and wherein the second fluid is approximately boiling at the inlet."

Because Weghaupt does not disclose all of the elements of amended claim 1, the §102(b) rejection of amended claim 1 is unsupported by the art and should be withdrawn. Because claims 6 and 7 depend either directly or indirectly upon amended claim 1, the rejection of claims 6 and 7 under 35 U.S.C. §102(b) is also unsupported by the art and should be withdrawn.

Additionally, in distinction to Weghaupt, claim 20 of the present application recites "a mover including a magnet component, and a conductor component, the mover also including a first passageway and a sealed second passageway, the second passageway being filled with a second fluid that is not actively circulated; and a fluid source that circulates a first fluid through the first passageway."

Because Weghaupt does not disclose all of the elements of claim 20, the §102(b) rejection of claim 20 is unsupported by the art and should be withdrawn. Because claims 21-26 depend either directly or indirectly upon claim 20, the rejection of claims 21-26 under 35 U.S.C. §102(b) is also unsupported by the art and should be withdrawn.

## Rejections Under 35 U.S.C. §103(a)

**Claims 12-14**

Claims 12-14 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,956,308 issued to Binnard ("Binnard"). Binnard qualifies as prior art under 35 U.S.C. §102(e). The Applicant respectfully traverses the §103 rejection of claims 12-14, based on 35 U.S.C. §103(c), which provides as follows:

"(c) Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person." 35 U.S.C. §103(c). (Emphasis added).

Evidence to Establish Common Ownership

The claimed invention included in the present application and Binnard were, at the time the invention in the present application was made, owned by and/or subject to an assignment to Nikon Corporation. Thus, Binnard is disqualified as prior art in a rejection under 35 U.S.C. §103(a). (See MPEP 706.02(l)(2)).

Because sufficient evidence has been provided to establish "common ownership" of the present invention and Binnard, the rejection of claims 12-14 under 35 U.S.C. §103(a) has been overcome and should be withdrawn. Accordingly, claims 12-14 are believed to be allowable.

**Claims 15-19 and 51-55**

Claims 15-19 and 51-55 are rejected under 35 U.S.C. §103(a) as being unpatentable over Dombrovski et al..

As noted above, the rejection of claim 1 is unsupported by the art. Therefore, claim 1 negates a prima facie showing of obviousness with respect to the cited reference. Accordingly, claims 15-19, which directly or indirectly depend from claim 1, are patentably distinguishable over the cited reference.

Further, as noted above, the rejection of claim 43 is unsupported by the art.

Therefore, claim 43 negates a prima facie showing of obviousness with respect to the cited reference. Accordingly, claims 51-55, which directly or indirectly depend from claim 43, are patentably distinguishable over the cited reference.

**Claims 28-32**

Claims 28-32 are rejected under 35 U.S.C. §103(a) as being unpatentable over Weghaupt.

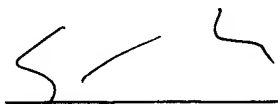
As noted above, the rejection of claim 20 is unsupported by the art. Therefore, claim 20 negates a prima facie showing of obviousness with respect to the cited reference. Accordingly, claims 28-32, which directly or indirectly depend from claim 20, are patentably distinguishable over the cited reference.

## Conclusion

In conclusion, the Applicant respectfully asserts that claims 1-32 and 34-55 are patentable for the reasons set forth above, and that the application is now in a condition for allowance. Accordingly, an early notice of allowance is respectfully requested. The Examiner is requested to call the undersigned at 858-456-1951 for any reason that would advance the instant application to issue.

Dated this 24th day of April, 2006.

Respectfully submitted,



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